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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,800

08/25/2006

Naoya Amino

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2201

30678

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07/20/2010

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EXAMINER

SCOTT, ANGELA C

ART UNIT

PAPER NUMBER

1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,800	<b>Applicant(s)</b> AMINO ET AL.	
	<b>Examiner</b> Angela C. Scott	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 May 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-13 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-13 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on May 20, 2010 and May 27, 2010 have been entered.

Claim 10 has been amended and claim 21 has been added. Claims 10-13 and 21 are pending.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523) in view of Kawakami et al. (US 4,748,168).

Regarding claim 10, Nakamura et al. teaches a rubber composition (¶85) comprising 100 parts by weight of rubber containing 50 to 90 parts by weight (¶89) of a styrene-butadiene copolymer and another diene rubber such as natural rubber or polybutadiene (¶88) and 1 to 50 parts by weight of a conjugated diene rubber gel (¶89) that is preferably a styrene-butadiene rubber (¶27-28) having a toluene swelling index of 16 to 70 (¶85).

Nakamura et al. does not teach that the glass transition temperature (T<sub>g</sub>) of the aromatic vinyl-conjugated diene copolymer rubber is from -40° C to -5° C (T<sub>gA</sub>) and that the glass transition temperature of the rubber gel (T<sub>gB</sub>) satisfies the following formula:

$$T_{gA} - 8 < T_{gB} < T_{gA} + 8$$

However, Kawakami et al. teaches a blend of styrene-butadiene rubbers where one rubber has a T<sub>g</sub> of from -20° C to -45° C (Col. 2, lines 20-25) and where the T<sub>g</sub> of the other rubber component is close to that of the first rubber component. See Col. 2, lines 35-45 where components do not blend well when they have T<sub>g</sub> about 20 degrees apart. Additionally, Table 2 and Table 3 show blends of two or three rubbers where the glass transition temperatures range from differences of about 11 degrees apart to as little as 3 degrees apart. This evidence shows

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that the glass transition temperatures should be close to one another for the rubbers or rubber gels to be compatible. Nakamura et al. and Kawakami et al. are analogous art because they are from the same field of endeavor, namely blends of styrene-butadiene rubber components. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a diene with a glass transition temperature being within eight degrees of glass transition temperature of the rubber gel, as taught by Kawakami et al., in the rubber composition, as taught by Nakamura et al., and would have been motivated to do so in order to ensure full compatibility between the two rubber components (Col. 2, lines 32-38).

Regarding claim 11, Nakamura et al. additionally teaches a Mooney viscosity of 50 to 200 (¶82) with 105 and 122 being explicitly disclosed (Table 3).

Regarding claim 12, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (¶20) (polyfunctional vinyl monomer units) (¶37).

Regarding claim 13, Nakamura et al. additionally teaches that the rubber composition further contains 10 to 99% weight of silica and 1-90% weight of carbon black (¶99) out of 10-200 parts by weight of total filler (¶98). The carbon black has a nitrogen adsorption specific surface area of 5 m<sup>2</sup>/g to 200 m<sup>2</sup>/g (¶92).

### ***Allowable Subject Matter***

Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: While Kawakami et al. teaches that the glass transition temperature of the rubber component and the rubber gel component should be close, it does not give any guidance on which component should have a higher glass transition temperature. Previously cited US 6,403,720 to Chino et al. teaches that a rubber gel blended, as the high Tg polymer, with a rubber component having a lower Tg promotes incompatibility. However, this reference wants the incompatibility and teaches that the Tg of the rubber should be at least 10° C less than the Tg of the rubber gel (Col.

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1, lines 60-65). This teaching is goes against the rejection of record and what is claimed and cannot be combined with them to form a proper rejection of instant claim 21. Therefore, since there is no teaching in the prior art of record, or in the knowledge of one of ordinary skill in the art, as to the rubber component having a glass transition temperature which is within 8 degrees higher than that of the rubber gel component, this claim contains allowable subject matter.

### ***Response to Arguments***

Applicant's arguments filed May 20, 2010 and May 27, 2010 have been fully considered but they are not persuasive.

Applicants argue that Kawakami et al. does not teach the styrene butadiene rubber having a Tg of -20° C to -45° C in combination with a conjugated diene-based rubber gel. While it is true that Kawakami et al. does not disclose the use of a rubber component with a rubber gel component, it does teach the concept of choosing close glass transition temperatures that can be applied to the primary reference which does teach a rubber/rubber gel blend.

Applicants argue that they have shown unexpected results when using a rubber with a rubber gel where both components have very similar glass transition temperatures. However, as discussed above, Kawakami et al. teaches choosing close glass transition temperatures for compatibility and this is applied to Nakamura et al. in order to ensure better blending of the components. One of ordinary skill in the art, based on this teaching, would expect better results for compositions where the glass transition temperatures of the components are similar as opposed to those where they differ widely. Therefore, the fact that applicants have shown improved results when using a rubber and rubber gel blend where the glass transition temperature are similar is not unexpected. These results are expected from the teaching of the references.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 270-3303. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

/A. C. S./  
Examiner, Art Unit 1796  
July 14, 2010